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AMSAT NEWS SERVICE
ANS-284

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor at amsat.org.

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SB SAT @ AMSAT $ANS-284.01
ANS-284 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 284.01
 >From AMSAT HQ KENSINGTON, MD.
DATE October 11, 2015
To All RADIO AMATEURS
BID: $ANS-284.01

Fox-1A Launched at 0549 PDT on October 8, 2015

Launch and Deployment was Successful!

PE0SAT, ON4HF, and R2ANF heard signals on the first pass!

Video of liftoff
https://www.youtube.com/watch?v=drTsIV7nR3w&feature=youtu.be

Keplerian elements:
GRACE2
1 99992U 15281.53437500 .00015007 00000-0 15580-2 0 00009
2 99992 064.7657 291.6734 0216442 282.3705 182.7702 14.73904028000019

AMSAT's Fox-1A launched as part of the GRACE (Government Rideshare Advanced Concepts Experiment) auxillary payload on the NROL-55 mission October 8, 2015 from Vandenburg AFB on an Atlas V vehicle. The launch occurred at 5:49 AM PDT, with the NASA TV webcast starting at 5:29 AM PDT. NRO has released this factsheet about the mission: http://www.amsat.org/wordpress/wp-content/uploads/2015/10/GRACE_CubeSat_FactSheet.pdf

General information on Fox-1A is available in the downloadable http://www.amsat.org/wordpress/wp-content/uploads/2015/05/FoxOperatingGuide_May2015_Hi.pdf

FoxTelem software for decoding and submitting telemetry has been made available for download at http://www.amsat.org/?page_id=4532

Keplerian Elements: We will provide the Keplerian elements (aka Keps or TLEs) to enable you to track Fox-1a as soon after launch as we get them (and are cleared to release them). The information will be placed on http://www.amsat.org/amsat/ftp/keps/current/nasabare.txt .

INITIAL COMMISSIONING PERIOD: Initially the transponder will not be on and will not respond to uplinks. Please do not attempt to uplink while we check out the satellite and commission it. We will publicize when we have opened the transponder to general use. You should expect the checkout phase to last for a minimum of several days and possibly for several weeks.

What To Listen For: During the initial checkout period and when the satellite is in range, every two minutes you will generally hear about 5 seconds of data followed by a few seconds of a voice ID (and possibly a second data packet). You may occasionally hear 'data' mode which Chris, G0KLA, has famously described as sounding like an old-fashioned telephone modem. If you should happen to hear what appear to be QSOs, please resist the temptation to join in before the commissioning period is over.

Please Send Telemetry Reports and Data: We would love to have you collect and upload as much data as you can, and to give any other kind of report on the amsat-bb mailing list (which some of the Fox team will monitor).
You can also report hearing or not hearing it on http://www.amsat.org/status/

You can upload data using the FoxTelem telemetry program that we recently released. (Check the "upload to server" box in the properties/preference page).
More data will help us do the checkout faster! Remember if you hear the "telephone modem" sound, you must switch FoxTelem to high-speed mode manually.
Similarly FoxTelem must be in low-speed mode at other times.

We are planning a special award to the person who submits the first data from the satellite (by which we mean the earliest downlinked mission elapsed time), so get your rigs ready!

As part of the preparations for the launch and activation of this new satellite, AMSAT is making our “Getting Started With The Amateur Satellites” book available for a limited time as a download with any paid new or renewal membership purchased via the AMSAT Store. This offer is only available with purchases completed online, and for only a limited time. A perennial favorite, Getting Started is updated every year with the latest amateur satellite information, and is the premier primer of satellite operation. The 132 page book is presented in PDF format, in full color, and covers all aspects of making your first contacts on a ham radio satellite.

Please take advantage of this offer today by visiting the AMSAT store and selecting any membership option. While there, check out our other items, including the M2 LEOpack antenna system, AMSAT shirts, hats, and other swag.
Thank you, and see you soon on Fox-1A!

[ANS thanks AMSAT-NA for the above information]

AMSAT-NA VP-Engineering on NASA TV

Radio amateurs Jerry Buxton, N0JY and Courtney Duncan, N5BF were on the panel at a NASA prelaunch briefing on Wednesday, October 7.

Participants in the news briefing discussed several of the specific CubeSats aboard the National Reconnaissance Office’s NRO-L55 mission. Four of the CubeSats are NASA-sponsored and nine are NRO-sponsored, one of which was developed with NASA funding. The mission is scheduled to launch Oct. 8 from California’s Vandenburg Air Force Base.

The panel comprised:
• Richard Welle, director, Microsatellite Systems department at The Aerospace Corporation
• Tim Olson, principal investigator for BisonSat, Salish Kootenai College, Pablo, Montana
• Morgan Johnson, team lead for the ARC CubeSat, University of Alaska, Fairbanks
• Jerry Buxton, N0JY Vice President, Engineering, for AMSAT Fox-1
• Courtney Duncan, N5BF, principal investigator for LMRST-Sat, NASA’s Jet Propulsion Laboratory, Pasadena, California

Video
https://www.youtube.com/watch?t=1&v=b6duPV3BwcY

Jerry described the Fox-1A mission and science, and answered questions.

[ANS thanks AMSAT-UK for the above information]

AO-85 OSCAR Number Assigned for Fox-1A

William (Bill) Tynan, W3XO, AMSAT-NA OSCAR Number Administrator has issued the
following release:

I have been informed of the successful launch today, October 8, 2015 of the AMSAT-NA-built Fox-1A CubeSat. I am also informed that the satellite has been heard by several amateurs in various countries.

This successful launch comes after years of diligent and dedicated work on the part of AMSAT-NA volunteers including Tony Monteiro, AA2TX, who became a silent key in March, 2014. It was Tony who spearheaded and guided the
work on all AMSAT-NA CubeSats until his untimely passing. Thus, it is only fitting that this spacecraft be dedicated to his memory.

Following Tony’s death, the work of completing and preparing for launch fell to Jerry Buxton, N0JY, who took over Tony’s post of AMSAT-NA’s Vice President for Engineering and saw to Fox-1A’s successful completion and its preparation for launch.

All of those who had a part in designing, constructing and testing Fox-1A and its various subsystems are to be congratulated for jobs well done.

Since Fox-1A was properly coordinated through IARU as an Amateur Radio satellite, has been successfully launched and its signals have been received; I, under the authority vested in me by the AMSAT-NA President, do hereby issue to Fox-1A the designation AMSAT-OSCAR-85, or AO-85.

May AO-85 serve the radio amateurs of world for many years to come.

[ANS thanks Bill, W3XO, and AMSAT-NA for the above information]

Fox-1A Launch Commemorative Issue of the AMSAT Journal - Free Download

Congratulations to AMSAT's Fox-1A team on their successful launch, orbital deployment, and activation of the Fox-1A satellite. (Now to be known as AO-85.)

AMSAT has produced a free, commemorative issue of the AMSAT Journal highlighting the Fox-1A launch success. This full color PDF issue can be downloaded from our current top news story, "Fox-1A launch 5:49 AM PDT on October 8, 2015" at http://www.amsat.org. A direct link to this news item is http://www.amsat.org/?p=4591

If you aren't already a member of AMSAT this issue of our magazine will give you an inside look at the best ham radio club in the world. You'll read and see
the dedicated efforts of the Fox-1A team that got us to October 8. Please consider joining AMSAT to support our series of launches coming in 2016 and beyond.

[ANS thanks AMSAT-NA for the above information]

Lapan ORARI (LAPAN-A2) Receives OSCAR Number IO-86

William (Bill) Tynan, W3XO, AMSAT-NA OSCAR Number Administrator has issued the following release:

AMSAT-NA has received information from YE0EEE of the successful launch, September 28, 2015 of an Indonesian Amateur Radio satellite, Lapan ORARI (LAPAN-A2).

According to the information I have, this satellite meets all of the requirements to receive an OSCAR number, including IARU coordination. Accordingly, by the authority vested in me by the AMSAT-NA President, I hereby confer on this spacecraft the designation Indonesia OSCAR- 86. or IO-86.

Dirgan, YE0EEE, and all who had a part in the design, construction, test and launch of IO-86 are to be congratulated. May this Amateur Radio spacecraft have a long and useful life serving the amateurs of the world.

The following response was received from Dirgantara, YE0EEE from AMSAT-ID: Many thanks for good news. I, the AMSAT-ID Team, and LAPAN are all very happy about the new Oscar number. By today, I will have informed all the ORARI members.

Link to AMSAT-UK article on LAPAN-A2 launch
http://amsat-uk.org/2015/09/28/lapan-a2-fm-and-aprs-satellite-launched/

[ANS thanks Bill, W3XO, and AMSAT-NA for the above information]

ISS CubeSats Deployed Monday, October 5

Two Danish CubeSats carrying amateur radio payloads were successfully deployed from the International Space Station (ISS) on Monday, October 5 at 1405 UT. Originally launched to the ISS on August 19, 2015, the two CubeSats, AAUSat-5 and GomX-3, were deployed from the ISS Japanese Kibo module airlock using the Kibo robotic arm.

After deployment the CubeSats stated transmitting signals to Earth that can be picked up by anyone with common amateur radio equipment. The frequencies to listen on are:
• AAUSat-5 – 437.425 MHz with 30 WPM CW beacon every 3 minutes and 9600 bps GMSK packet every 30 seconds
• GomX-3 – 437.250 MHz with 1200-9600 bps GMSK data using CSP protocol

AAUsat-5 is a 1-Unit CubeSat built by students at Aalborg University. The primary mission is to test an improved receiver for detecting Automatic Identification System (AIS) signals emitted by ships. Down on the ground, these signals are short-range, operating mainly on a ship-to-shore and ship-to-ship basis, leaving large spans of the world’s oceans uncovered. But signals also

travel up to orbital altitude, opening up the prospect of worldwide monitoring.

GomX-3 is a 3-Unit CubeSat which aims to demonstrate new radio technology. A reconfigurable software-defined radio receiver will intercept L-band spot beams
from telecom satellites in geostationary orbit, to provide independent measurements of their signal strength and quality. This receiver can also be re-purposed to receive any other L-band signal, such as navigation satellite signals or radar beams.

A receiver will pick up Automatic Dependent Surveillance – Broadcast (ADS-B) signals automatically broadcast by civilian aircraft, to build up an overview
of regional air traffic. Additionally there is a high data rate X-band transmitter developed by Syrlinks. The CNES X-band ground station in Kourou,
South America, will be used to demonstrate the link.

The GomX-3 amateur radio payload uses a NanoCom AX100 UHF transceiver and ANT430 antenna.

Mineo Wakita JE9PEL in Japan reported receiving the GomX-3 beacon in Japan from 1505-1510 UT on October 5 and Luciano Fabricio PY5LF reported hearing GomX-3 in Brazil at 1605 UT. Jan van Gills PE0SAT in the Netherlands received
AAUSat-5 at 1800 UT.

The two spacecraft may have a lifetime of around 7 months before they burn up
in the Earth’s atmosphere.

GomX-3 telemetry beacon
https://www.dropbox.com/s/x4mipoz9gmqhlib/GOMX3_Beacon.pdf

AAUSat-5 telemetry beacon
http://www.space.aau.dk/aausat5/index.php?n=Main.HamInfo

ESA article CubeSats set for Monday Release (with video)
http://www.esa.int/Our_Activities/Space_Engineering_Technology/ESA_CubeSats_set_for_Monday_release

ESA invites radio amateurs to listen for AAUSat-5 CubeSat
http://amsat-uk.org/2015/09/24/esa-listen-for-aausat-5/

[ANS thanks ESA and AMSAT-UK for the above information]

LQSat Launched Monday, October 5

LQSat was launched into a 656 km sun synchronous orbit at 0413 UT on Wednesday,
October 7 from the Jiuquan Satellite Launch Center (JSLC) in Inner Mongolia on
a Chang Zheng 2D (CZ-2D) rocket.

The satellite was developed by researchers and students at the Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP) and carries an amateur

radio payload.

LQSat is technology demonstrator measuring 40x40x60 cm with a mass of 50 kg and carries a 2 m resolution camera as the main payload.

The IARU coordinated downlink frequencies are
• 437.650 MHz at 0.5 watts (27 dBm) with either 25 WPM CW or 4800 bps MSK CSP
packet data
• 2404 MHz at 1 watt (30 dBm) using 1 Mbps QPSK

Launch report
http://www.nasaspaceflight.com/2015/10/china-launches-jilin-1-mission-long-march-2d/

[ANS thanks AMSAT-UK for the above information]

AMSAT at Pacificon 2015

AMSAT will participate at Pacificon on October 17, 2015 in San Ramon, California. The ARRL Pacific Division's Conference, Pacificon 2015 will be held
in the Marriott, 2600 Bishop Drive in San Ramon. The host for Pacificon is the Mount Diablo Amateur Radio Club (MDARC).

Alan, WA6DNR will be representing AMSAT with a table and Michael, WA6ARA will
be giving a forum presentation titled, “Satellites - Amateur Radio's Future.”
Micheal's forum presentation will be at 1100 PDT, October 17 in the San Ramon
Marriott's Pleasanton Room. Say Hi Hi to both!

If you're on the west coast and cannot make it to Dayton for the AMSAT Space
Symposium, Pacificon is always a fun alternative with swap meet, forums, dinner, events, and Gordo West.

Further details on Pacificon are at:
https://sites.google.com/a/mdarc.org/pacificon2015/home

[ANS thanks Alan Bowker, WA6DNR for the above information]

AO-85 (Fox-1A) FM Voice Transponder Activated

The 435 to 145 MHz FM voice transponder on AO-85 was activated during Friday,
October 9 allowing many contacts to be made. Among those active on the satellite was 9-year-old Hope KM4IPF. Hope is the daughter of Michelle N8ZQZ
and James WX4TV, other radio amateurs in the family are Hope’s elder sister Faith WA4BBC and brother Zechariah, WX4TVJ. Her younger sister is

studying for
her license.

In this video Hope KM4IPF describes her first AO-85 (Fox-1A) contact
https://vimeo.com/141916942

Fox-1A Real-time track and Orbital Predictions (click on Draw Footprint to
show coverage area)
http://www.n2yo.com/?s=40967

Read the Fox Operating Guide to find out how to set up your handheld
radio to
work the satellite
http://www.amsat.org/wordpress/wp-content/uploads/2015/05/FoxOperatingGuide_
May2015_Hi.pdf

Note: If your rig has selectable FM filters use the wider filter for 5 kHz
deviation 25 kHz channel spacing.

See
http://amsat-uk.org/2015/10/09/fox-1a-fm-transponder-activated/

[ANS thanks AMSAT-UK for the above information]

AO-85 Update

AO-85 is still being tested. Please note that while AO-85 is in Transponder
Mode right now, we have not officially commissioned her and testing is
still
underway. Part of the testing involves observations in Transponder and Data
Modes. We may switch out of Transponder Mode at any time without notice,
until we are done testing.

If AO-85 is in Safe Mode or Data Mode when it passes and you were expecting
Transponder Mode, don't be surprised or angry!

[ANS thanks AMSAT Vice-President for Engineering Jerry, N0JY for the above
information]

New OSCAR Status Page

Thanks to the efforts of Joe KM1P and Pete 2E0SQL, and with the permission
of David, KD5QGR, we have set up a copy of the OSCAR satellite status
page at
http://www.amsat.org/status

This page will be maintained by multiple volunteers, including myself, and
we will be able to add and delete satellites as required, as well as keep
information links current. It will take a few days to populate the database,
but please begin using this page as soon as possible. In the near future the
old page will point to this one for a while, until people get used to the
new address.

There are still some satellites to add and delete, so this will be a work in progress for a bit. First and foremost we will delete the reentered sats, and add Fox-1A for next Thursday!

[ANS thanks Drew, KO4MA for the above information]

AMSAT Events

Information about AMSAT activities at other important events around the country. Examples of these events are radio club meetings where AMSAT Area Coordinators give presentations, demonstrations of working amateur satellites, and hamfests with an AMSAT presence (a table with AMSAT literature and merchandise, sometimes also with presentations, forums, and/or demonstrations).

*Friday, Saturday, and Sunday, October 16-18 2015, AMSAT Symposium in Dayton OH (Dayton Crown Plaza)

*Friday, Saturday, and Sunday, October 16-18 2015, ARRL Pacific Division Convention (Pacificon), San Ramon, California

*Saturday, 7 November 2015 – Oro Valley Amateur Radio Club Hamfest in Marana AZ

*Saturday and Sunday, 7-8 November 2015 – Stone Mountain Hamfest and ARRL Georgia Section Convention in Lawrenceville GA

*Monday, 16 November 2015 – Tri-City Amateur Radio Association meeting in Goodyear AZ

*Saturday, 5 December 2015 – Superstition Superfest 2015 in Mesa AZ

[ANS thanks AMSAT-NA for the above information]

ARISS News

Successful Contacts

October 6, 2015

* A telebridge contact via LU1CGB with students at Corpus Christi Catholic School, Chambersburg, PA, USA was successful Tue 2015-10-06 16:29:32 UTC 33 deg. Students received answers to 18 questions from astronaut Kjell Lindgren,
KO5MOS.

Listen to a recording of the contact:
http://www.ariss.org/news.html

School Information
Corpus Christi Catholic School is a K - 8 Roman Catholic Elementary School,

located in Chambersburg, Pennsylvania. With an enrollment of 215 students and 17 full-time and 3 part-time faculty members, Corpus Christi School is committed to the pursuit of excellence in Catholic education. The school strives to be on the cutting edge of technology with Smartboards in every classroom, two computer labs, iPads, and Chromebooks. Students in the primary grades participate in weekly swim lessons at the local YMCA. Intermediate grades place a strong emphasis on STEM related concepts and careers. Grades four through eight have background knowledge of NASA starting with Gemini and continuing onto Mars. In 2013, three teachers were selected to be on the Reduced Gravity Flight through NASA Explorer Schools. This experience increased the entire students' awareness of space flight and experiments being conducted in microgravity on the International Space Station. Middle school students are able to expand their curriculum by traveling to major cities such as Pittsburgh, Washington DC, and Williamsburg, VA. Scores on standardized tests are above the national average. School pride runs deep with the students, faculty, staff and parents.

* A direct contact via 9M2RPN with students at Sekolah Kebangsaan Taman Tun Dr Ismail (1), Kuala Lumpur, Malaysia, was successful Fri 2015-10-09 08:00:04 UTC 47 deg. The scheduled astronaut was Kjell Lindgren KO5MOS.

Video Link of Contact
https://www.youtube.com/watch?v=VCMo_BkXOaI

School Information
Our first ARISS contact was made in 2007 when, Malaysia's first Astronaut Shiekh Muzapher went on board the ISS. We made 5 direct contacts when, some 80 school children talked to him and asked questions. Since then it has become a highly sought after yearly event which is tied up with the Prime Minister's Space Challenge Trophy. This year we will be making our 8th yearly contact.
Since the schools do not have ground stations, they make use of Satellite Ground Station at the National Planetarium established in 1995 under the call sign of 9M2RPN. The schools are the nurseries to produce future astronauts and space scientists. The forthcoming contact in October 2015 provides the hands on experience and the seeding operation for tomorrow's space scientists.

Upcoming Contacts

* A telebridge contact via IK1SLD with students at Bay View Elementary School in Burlington, Washington, USA is scheduled for Wed 2015-10-14 19:41:44 UTC 59 deg.

School Information
Bay View School in Burlington, Washington has been serving kindergarten through eighth grade students in the Burlington-Edison School District for 22 years. Named after the small community of Bayview, which was later incorporated by the town of Burlington, it serves mainly in-district neighborhood

students.
This year 562 students are enrolled. The town of Burlington is 66 miles north
of Seattle, Washington. Located at the intersection of two major highways, Burlington serves as a retail and commercial hub for the region. Industry is mainly agricultural, retail, and commercial.

Over the past three years, Bay View has committed to becoming a school of inquiry. Through inquiry and collaboration, Bay View's purpose is to nurture compassionate, creative, knowledgeable growth-minded world citizens, who pursue
dreams and positively impact the future. Bay View continually inquires to understand one essential question. What do we need to understand, commit to and
implement to prepare students to be career, college, and/or world ready for the
21st century? This journey has led them to begin creating concept-based units
of inquiry at each grade level. Multi-disciplinary and intra-disciplinary units
support school-wide connections through inquiry. The opportunity to ask questions of astronauts on the ISS was pursued as an experience that could spark students' interest in space, engineering, technology, mathematics, and support a school-wide inquiry.

Watch
http://www.ariss.org/upcoming-contacts.html
for information about upcoming contacts as they are scheduled.

[ANS thanks ARISS, and Charlie, AJ9N for the above information]

Satellite Shorts From All Over

AMSAT Highlighted in This Week at NASA

Fox, amateur radio, and AMSAT are briefing featured this week in the short weekly news update "This Week at NASA."

See:
https://youtu.be/tWOiU2oJMSA

[ANS thanks Frank, KA3HDO for the above information]

Magazine Archive

Free (hams like free!) access to electronics and radio magazines from the past. Something to read while waiting for that next AO-85 pass ...
See
http://americanradiohistory.com/
Hover mouse over Broadcast & Consumer for a menu
Hover mouse over Consumer Electronics then Popular Electronics & Similar

The old issues download as PDF files. Gotta try it on my tablet to see if it works in the little room down the hall ...

[ANS thanks JoAnne, K9JKM for the above information]

AMSAT Symposium / VUCC/WAS QSL Card Checking

Bruce Paige, KK5DO, AMSAT Director Contests and Awards reports that if you have any cards you would like checked for VUCC/WAS, I will be at the Symposium.
I will give preference to satellite contacts first before I check other bands/modes. If you are going to have cards checked, I prefer the list be in
Grid Square order using an Excel spreadsheet or Word doc with the second column being the call sign worked. Place all your cards in the same grid square order as the list with any cards that contain multiple grids at the end
of the stack. If you have lists (from Yuri, etc), I can go through them as well.

[ANS thanks Bruce, KK5DO for the above information]

NASA to Announce Selections for Small Satellite Launch Contract

October 07, 2015
MEDIA ADVISORY M15-150
NASA to Announce Selections for Small Satellite Launch ContractNASA will host
a news conference at 1 p.m. EDT on Wednesday, Oct. 14, at the agency's Kennedy
Space Center in Florida to announce the outcome of the Venture Class Launch Service (VCLS) competition. The news conference will air live on NASA Television and the agency's website.
The participants are:
• Garrett Skrobot, Educational Launch of Nanosatellites (ELaNa) mission lead for the Launch Services Program (LSP) at Kennedy
• Eric Ianson, associate director of NASA's Earth Sciences Division in the Science Mission Directorate at the agency's headquarters in Washington
• Mark Wiese, flight projects office chief, NASA Launch Services Program, Kennedy Space Center
• Representatives from the selected launch service providers

[ANS thanks NASA for the above information]

See you in Dayton! - Joe, K6WAO

/EX

In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73,

This week's ANS Editor,
Joe Spier, K6WAO
k6wao at amsat dot org